**Bacterial Transformation Data Sheet**

**Data:**

**Table #1 – “P-“ Control Group**

|  |  |  |  |
| --- | --- | --- | --- |
| **Plate Contains** | Predicted Growth | Conclusion if growth occurs | Conclusion if growth does not occur |
| Luria Broth (LB) |  |  |  |
| Luria Broth and Ampicillin (LB/amp) |  |  |  |

**Table #2 – “P+” Experimental Group**

|  |  |  |  |
| --- | --- | --- | --- |
| **Plate Contains** | Predicted Growth | Conclusion if growth occurs | Conclusion if growth does not occur |
| Luria Broth  (LB) |  |  |  |
| Luria Broth and Ampicillin  (LB/amp) |  |  |  |
| Luria Broth and Ampicillin and arabinose (LB/amp/ara) |  |  |  |

**Analysis and Conclusion Questions:**

1. How was the P+ bacteria culture treated differently from the P- bacterial culture?
2. What is the purpose of the P- bacteria culture?
3. Why are the cells incubated at 37 degrees Celsius?
4. Why is using aseptic techniques important for this lab?
5. Look at the results of your transformation. Do your actual results match your predicted results? If not, what differences do you see, and what are some explanations for these differences?
6. How many red colonies were present on your LB/amp/ara plate?
7. Why did the red colonies only appear on the LB/amp/ara plate and not the LB/amp plate?
8. Recombinant plasmids are engineered so that they can replicate in the cell independently of the chromosome replication. Why is it important to have multiple copies of a recombinant plasmid within a cell?
9. How is the information encoded in the *rfp* gene expressed as a trait? Be sure to use what you have previously learned about gene expression and the relationship between DNA, RNA, protein, and traits.
10. Why is it possible for bacteria to make a human protein, such as insulin, or a sea anemone protein, such as the red fluorescent dye?
11. The only bacteria that could produce the red fluorescent protein were bacteria that were transformed with the pARA-R plasmid. Why?